REMARKS

In the present application, claims 58-73 are pending. All claims are rejected under 35

U.S.C. § 103(a) as being unpatentable. Applicants have added new dependent claims 74-77. No

new matter has been added. In view of the following remarks, Applicants respectfully request

reconsideration of the Application.

Rejection under 35 U.S.C. § 103(a)

In paragraph 3 of the Office Action, claims 58-66 and 71-73 are rejected under 35 U.S.C.

§ 103(a) as being unpatentable over U.S. Patent No. 5,606,650 to Kelley et al. (hereinafter,

"Kelley") in view of non-patent literature, Williams, L., "Pyramidal Parametrics" (hereinafter,

"Williams"). Specifically, the Examiner states that "Kelley discloses a method for mapping a

texture onto a surface (col.1, lines 16-19) of a computer generated object comprising the steps of

texturing operations being determined by **a geometric shape of a projection of a pixel on the**

texture (col. 1, lines 24-42) . . . " (emphasis in bold supplied). Applicants assert that the

Examiner has not established prima facie obviousness because not all claim limitations are

taught or suggested by the references.

Kelley discloses mapping a texture map (predetermined pixel shading values) to a surface

(col. 1, lines 16-19). Kelley further discloses **associating** pixels on a screen with entries in the

texture map by a functional mapping of pixel coordinates (x,y) to texture map coordinates (u,v)

(col. 1, lines 24-30) (emphasis in bold supplied). Thus, although Kelley discloses associating a

pixel with an entry in a texture map, Kelley does not disclose projecting a pixel on a texture.

Kelly only discloses that "[g]enerally, there will be a one to one relationship between the pixels

on the display and entries on the texture maps" (Col. 1, lines 28-39). Moreover, <u>Kelley</u> does not teach or suggest "texturing operations being determined by a geometric shape of a projection of a pixel on the texture" as is recited in pending claim 58.

For at least the above-stated reasons, Applicants respectfully submit that claim 58 is not obvious over <u>Kelley</u> in view of <u>Williams</u>. Therefore, claim 58 is allowable. Because claims 59-64 depend directly or indirectly from claim 58, claims 59-64 are allowable for at least the same reasons as claim 58.

Regarding claim 71, beginning on page 4, line 21 of the Office Action, the Examiner states that "the limitations of claim 71 are identical to claim 58 above except for an electronically-readable medium storing a program for permitting a computer to perform. Therefore, claim 71 is treated the same as discussed with respect to claim 58 above." Because claim 71 is treated the same as claim 58 in the Office Action, claim 71 is allowable for at least the same reasons as claim 58.

Regarding claims 65 and 72, beginning on page 4, line 16 of the Office Action, the Examiner states that "Williams teaches modifying a specularly reflected light intensity on a surface of a computer generated object (page 7, 3rd paragraph; figs. 13-14), comprising combining the specularly reflected light intensity with a specular reflectance coefficient, specular reflectance coefficient being retrieve from a specular reflectance coefficient map associated with **the surface** (pages 7-8)." (emphasis in bold supplied). Applicants assert that the Examiner has not established a prima facie obviousness because not all claim limitations are taught or suggested by the references.

Pending claims 65 and 72 recite "said specular reflectance coefficient being retrieved from a **specular reflectance coefficient map associated with a texture map**" (emphasis

supplied). <u>Williams</u> discloses "**an illumination map**...used to cast reflections onto **specular surfaces**" (page 8, emphasis supplied). Thus, <u>Williams</u> discloses reflectance mapping onto specular surfaces, not onto a texture. Moreover, <u>Williams</u> does not teach or suggest that the illumination map is associated with a texture map. Therefore, <u>Williams</u> does not teach or suggest "said specular reflectance coefficient being retrieved from a specular reflectance coefficient map associated with *a texture map*," as recited in pending claims 65 and 72 (emphasis supplied).

For at least the above-stated reasons, Applicants respectfully submit that claims 65 and 72 are not obvious over <u>Kelley</u> in view of <u>Williams</u>. Therefore, claims 65 and 72 are allowable. Claim 66 depends directly from claim 65 and is allowable for at least the same reasons as claim 66.

Regarding claim 73, beginning one page 5, line 5 of the Office Action, the Examiner states that <u>Williams</u> teaches:

> an electronically-readable medium storing a program for permitting a computer to perform a method for adding detail to a texture map comprising at least one texture element, the method comprising **generating a detail map** (<u>page 9</u>), *assigning a pointer* (<u>page 2; index correspond to pointer</u>) *into [said] detail map* to at least one of the **texture elements of the texture map** to generate **a pointer map, [said] pointer comprising two offsets including a first offset stored in a first offset map and a second offset stored in a second offset map** (<u>pages 2-3</u>); **interpolating detail color based on the generated detail map** (<u>page 3</u>); interpolating texture color based on the texture map; and **combining detail color with texture color to generate a pixel color** (<u>pages 3 and 7-8</u>) (emphasis in bold supplied)

Applicants assert that the Examiner has not established a prima facie obviousness because not all claim limitations are taught or suggested by the references. Applicants respectfully submit that <u>Williams</u> does not disclose: (1) generating a detail map; (2) assigning a pointer into a detail map to at least one of the texture elements of the texture map to generate a pointer map comprising

two offsets including a first offset stored in a first offset map and a second offset stored in a second offset map; (3) interpolating detail color based on the detail map; and (4) combining detail color with texture to generate a pixel color.

The detail map methodology of the present invention as set out in the specification at section 9, pages 19-21 and figures 9-11 provides an innovative method for storing a "pattern collection" from which the magnified texture can be constructed by translations. Irregular textures can be magnified without causing a coarse staircase structure to be displayed on the screen. In contrast to the detail map recited in pending claim 73, Williams discloses using pyramidal parametrics "to **limit the level of detail** with which the **surface** itself [of an object] is represented" (page 9). Thus, the purpose of using pyramidal parametrics as disclosed in Williams is to limit the level of detail in representing surfaces, not to add detail to a texture map. Furthermore, a surface is distinctly different from a texture map. Based on at least the above arguments, Applicants submit that Williams does not teach or suggest "generating a detail map" as recited in pending claim 73, and that claim 73 is therefore allowable.

Further, Williams does not disclose "assigning a pointer into said detail map to at least one of the texture elements of the texture map to generate a pointer map, said pointer comprising two offsets including a first offset stored in a first offset map and a second offset stored in a second offset map" as recited in pending claim 73. On page 2, in the caption associated with the lower figure, Williams discloses, "D is the variable used to index, and interpolate between, the *different levels* of the pyramid" (emphasis supplied). However, Williams does not teach or suggest that D is a pointer assigned to at least one of the texture elements of a texture map, nor that D comprises two offsets including a first offset stored in a first offset map and a second offset stored in a second offset map. In contrast to the D index disclosed in Williams, FIG. 11(a)

of the present application illustrates pointers assigned to discrete texture elements (i.e., texels) in one embodiment of the Applicants' invention.

Based on at least the above arguments, Applicants submit that Williams does not teach or suggest "to at least one of the texture elements of the texture map to generate a pointer map, said pointer comprising two offsets including a first offset stored in a first offset map and a second offset stored in a second offset map" as recited in pending claim 73, and that claim 73 is therefore allowable. Further, Williams does not teach or suggest generating a pointer map nor does Williams disclose an offset map. Applicants fail to find even a hint at describing a pointer map or an offset map in Williams. Accordingly, claim 73 is allowable for at least these additional reasons.

Since Williams does not teach or suggest generating a detail map, there is no logical basis for the claim of the Examiner that Williams teaches "interpolating detail color based on the generated detail map." Accordingly, Claim 73 is allowable for at least this reason.

Finally, Williams does not teach or suggest "combining detail color with texture color to generate a pixel color." The discussion in Williams on page 3 describes the mechanism for creating and accessing a color mip map. The discussion in Williams on pages 7 and 8 describes highlight antialiasing, which describes neither texture color nor detail color. In no other text or teaching of Williams is there any disclosure of "combining detail color with texture color to generate a pixel color." Based on at least the above arguments, Applicants submit that Williams does not teach or suggest "combining detail color with texture color to generate a pixel color" as recited in pending claim 73, and that claim 73 is therefore allowable.

In paragraph 4 of the Office Action, claims 67-70 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kelley in view of Williams and further in view of U.S. Patent No.

5,651,104 to <u>Cosman</u>. Specifically, the Examiner states that "the limitations of claim 67 are identical to claim 58 above except for the specific limitations as addressed below. Therefore, claim 67 is treated the same as discussed with respect to claim 58 above." Because claim 67 is treated the same as claim 58 in the Office Action, claim 67 is allowable for at least the same reasons as claim 58. Claims 68-70 depend directly or indirectly from claim 67 and are therefore allowable for the same reasons as claim 67.
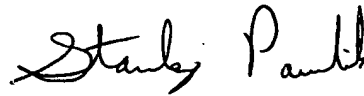
Based on the foregoing remarks, Applicants believe that the rejections in the Office Action of November 7, 2003 are fully overcome, and that the Application is in condition for allowance. If the Examiner has questions regarding the case, he is invited to contact Applicants' undersigned representative at the number given below.

Respectfully submitted,

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